

L2 Managed Gigabit Ethernet Switches with Dual-Media SFP Ports • WebSmart Gigabit Switches

**Give important traffic priority
and bandwidth when switching
Gigabit copper—and fiber!**



FEATURES

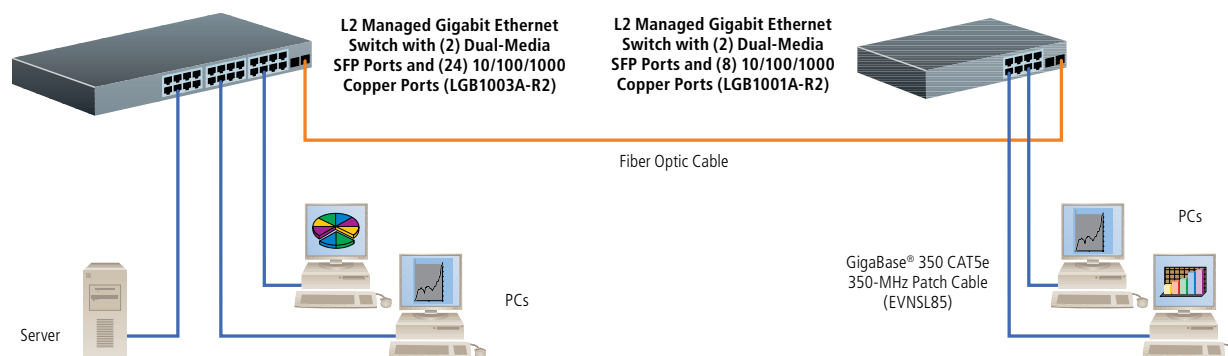
L2 Managed Gigabit Ethernet Switches:

- » Support all IEEE 802.3/u/x/z Ethernet, Fast Ethernet, and Gigabit Ethernet specifications. Great for mixed-speed environments!
- » Also use in workgroups, office LANs, and larger metropolitan networks that carry higher-priority traffic for powerful applications.
- » Bundle multiple ports to create a single high-bandwidth port using 802.3ad Link Aggregate Control Protocol (LACP) aggregation.
- » Programmable higher layer classification and prioritization for reliable Quality of Service (QoS).
- » Ideal for use in VoIP real-time applications where info moves from Layer 2 to Layer 4.
- » Robust security with VLAN capabilities, as well as port security and IGMP snooping.
- » Easy to manage and configure. Support SNMP and Web-based management.
- » Spanning Tree (802.1w) algorithms prevent network switching loops.
- » RoHS compliant.

Web Smart Gigabit Switches:

- » Features 8 or 48 autosensing 10-/100-/1000-Mbps ports plus two slots for SFPs.
- » Use any standard Web browser to monitor and control the switches.

Migrate to copper and fiber Gigabit Ethernet with these managed switches.



OVERVIEW

For flexible, manageable port switching with bandwidth aggregation, choose BLACK BOX® L2 Managed Gigabit Ethernet Switches with Dual-Media SFP Ports.

Available with 8, 16, 24, or 48 10-/100-/1000-Mbps copper ports, these Layer 2 manageable switches offer advantages in mixed-speed and legacy-integration environments because all LAN ports support 10BASE-T, Fast Ethernet, and Gigabit Ethernet. The ports automatically sense the speed of each connected device, so when you upgrade to high-speed network devices, the switch automatically keeps pace.

The 8-port switch is an excellent choice for connecting branch office machines to a larger MAN or WAN. Because it has a noise-free, fanless design and a compact chassis, it's tailor-made for cramped SOHOs.

The 16-, 24-, and 48-port models are ideal for use in workgroups or WANs and are enclosed in a fan-cooled 1U rackmount chassis.

Dual-media SFP ports for extra versatility

Two or four ports on each switch are dual-media ports with two connectors each—one RJ-45 Ethernet and one SFP. You can use a dual-media port as an ordinary 10-/100-/1000-Mbps copper Ethernet port or you can use it to plug in an SFP in order to create a single- or multimode fiber link that supports distances of up to 20 kilometers (12.4 miles).

The 1250-Mbps SFPs support Gigabit Ethernet and report basic link characteristics such as SFP type, length of fiber link, wavelength, and bit rate. Models with extended diagnostics also report information such as temperature, TX and RX power, voltage, and bias current. The hot-pluggable interface enables you to change SFPs on the fly when your network requirements change.

Double up for bandwidth

Port trunking enables you to provide more bandwidth to a specific application or segment. 802.3ad Link Aggregate Control Protocol (LACP) bandwidth aggregation lets you combine Gigabit ports to create a multilink trunk for load sharing.

The 8-port model supports up to 4 Gigabit ports per trunk for a bandwidth up to 8 Gbps. The 16-port model can be set up with up to 8 Gigabit ports per trunk for bandwidth of up to 16 Gbps. The 24-port model supports up to 12 Gigabit ports per a trunk for up to 24-Gbps bandwidth. The 48-port model supports up to 24 Gigabit ports per trunk for up to 48-Gbps bandwidth.

LACP not only increases link capacity, it also creates higher availability. And because the switches aggregate all traffic based on MAC addresses, they balance traffic loads efficiently.

Manage traffic flow

Along with Layer 2 802.1p Priority Queue control, the switches offer Quality of Service (QoS) support, so you can program a higher layer classification and ensure that traffic in real-time applications, such as Voice over IP (VoIP), receives higher priority.

Broadcast/multicast storm suppression enables you to restrict excess traffic on your network. You can also control the rate limit for each switch port and set threshold values for the size of discarded packets. Jumbo frame support helps to ensure reliable data transmission, too. With this, you can set the switches to forward packets up to 9K in size before discarding them.

Highly secure

The switches also contain a number of security capabilities, including a Q-in-Q VLAN feature to isolate traffic between different users, and 802.1x user authentication, which prevents unauthorized access over the network.

In addition, with VLAN support for advanced 802.1Q, the switch enables you to limit broadcast traffic to within the same VLAN broadcast domain. And because the switches support Generic Attribute Registration Protocol (GARP) and Generic VLAN Registration Protocol (GVRP), they allow for a more efficient exchange of VLAN configuration data with other users and devices.

You can also limit the number of MAC addresses assigned to each port, which, in turn, enables you to control the number of access stations for each port. This way, you not only establish an access mechanism by user and machine, you also control the number of access stations on your network.

Highly manageable

Monitor, configure, and control ports with ease. The switches support SNMP, Web-based management, and CLI management interfaces. You can also stack up to 16 of the switches and, using Virtual Stacking Management (VSM), manage them all via one IP address. In this configuration, the switches are seen as part of a logically segmented VLAN—an expanded network that doesn't require the expense or configuration of additional hardware to implement.

Error resistant

[L2 Managed Gigabit Ethernet Switches with Dual-Media SFP Ports](#) also feature extensive error-tracking capabilities. Port mirroring, for instance, helps you track errors or abnormal packet transmission—all without interrupting data flow in your networked switched environment.

For mission-critical applications, use multiple switches and configure each with a redundant backup bridge path. Then, if a failure occurs on one switch, you'll still be able to guarantee the transmission and reception of packets via a secondary link on your network. For proper load balancing in VLAN applications, the 1000BASE-TX [L2 Managed](#)

[Ethernet Switch with Dual-Media SFP Ports](#) uses an 802.1w Rapid Spanning Tree (RST) algorithm for creating a loop-free Layer 2 topology.

Web Smart Gigabit Switches

Web Smart Switches make migrating to Gigabit Ethernet easy and affordable.

Setup is easy. Just use any Web browser to log onto the built-in CLI interface to configure or monitor the switch.

All 10-/100-/1000-Mbps copper ports are autosensing for speed and autonegotiating for duplex. The switches also feature Auto MDI/MDI-X, which means you never need a crossover cable. Plus, you can populate the SFP slot with a wide range of Gigabit and WDM uplink modules.

Tagged and port-based VLAN provides precise control over network traffic segmentation and broadcast domains with up to four trunk groups. You also get support for IEEE 802.x flow control for full-duplex mode and collision-based backpressure for half-duplex mode, plus Quality of Service (QoS) with a two-level priority queue.

SNMP trap management alerts you instantly when something goes wrong. Port mirroring helps to track network errors or abnormal packet transmission.



LGB1003A-R2



LGB1002A-R2: top: front view;
bottom: rear view



LGB1005A-R2

TECH SPECS FOR L2 MANAGED GIGABIT ETHERNET SWITCHES

Access Control — 802.1x; Management Access Policy Control; SNMP v1, v2c network management

Bandwidth Control — Supports ingress and egress bandwidth rating management with a resolution of 1 Mbps

Frame Buffer — LGB1001A-R2: 144 KB on-chip;

LGB1002A-R2: 272 KB on-chip;

LGB1003A-R2: 400 KB on-chip

LGB1048A: 768 KB on-chip

MAC Addresses — 8K

MIB Files — Interface MIB, Address Translation MIB, IP MIB, ICMP MIB, TCP MIB, UDP MIB, SNMP MIB, RFC 1213 MIB (MIB-II), RFC 1757 RMON MIB, Statistics Group 1, History Group 2, Alarm Group 3, Event Group 9, RFC 1493 Bridge MIB, RFC 1643 Ethernet MIB, Enterprise MIB

Protocols — LACP: LGB1001A-R2: Port trunking with 4 trunking groups, up to 8 ports for each group;

LGB1002A-R2: Port trunking with 8 trunking groups, up to 12 ports for each group;

LGB1003A-R2, LGB1048A: Port trunking with 8 trunking groups, up to 12 ports for each group;

GVRP/GARP: All: 802.1q;

Multicasting: IGMP snooping including active and passive mode;

STP/RSTP: 802.1d/1w

QoS Supported — Layer 4 TCP/UDP port and ToS classification; 802.1p QoS with two-level priority queue; priority in a Q-in-Q tag

Switching Capacity — Non-blocking, wire-speed performance; jumbo frame support up to 9K; broadcast/multicast storm suppression; port mirroring

VLAN Capabilities — Port-based VLANs; IEEE 802.1q tag-based VLANs, up to 256 active VLANs; Q-in-Q for enabling subscriber aggregation

CE Approval — Yes

Connectors — Twisted-pair ports: (8), (16), (24), or 48 RJ-45;

SFP fiber slots: (2) SFP for plugging in optional SFP modules (for details on SFP compatibility, contact our FREE Tech Support)

Indicators — LEDs: System: (1) Power;

Each twisted-pair port: (1) LINK/ACT, (1) 10/100/1000 Mbps;

SFP fiber slots: (1) LINK/ACT

Power — Input: 100–240 VAC, 50–60 Hz, autosensing;

Consumption: 30 W

Size — LGB1001A-R2: 1.7"H x 8.5"W x 5.2"D (4.3 x 22 x 13.2 cm);

LGB1002A-R2–LGB1003A-R2: 1.7"H x 17.4"W x 8.2"D (4.3 x 44.2 x 20.8 cm);

LGB1048A: 1.7"H x 17.4"W x 9.82"D (4.3 x 44.2 x 24.9 cm);

Weight — With unpopulated SFP fiber slots: LGB1001A-R2: 2.2 lb. (1 kg);

LGB1002A-R2–LGB1003A-R2: 6.4 lb. (2.9 kg);

LGB1048A: 7.5 lb. (3.4 kg)

TECH SPECS FOR WEBSMART GIGABIT SWITCHES

Buffer — LGB2008A: 144 KB;

LGB2048A: 768 KB

MAC Addresses — 8K

Operating Environment —

Temperature: LGB2008A: 41 to 104° F (5 to 40° C),

LGB2048A: 32 to 104° F (0 to 40° C);

Humidity: 10 to 90% noncondensing

Standards — IEEE 802.3, 802.3u, 802.1ab, 802.3z, 802.3x, ANSI/IEEE 802.3 autonegotiation, IEEE 802.1q VLAN

System Configuration — Web

CE Approval — Yes

Connectors — LGB2008A: (8) RJ-45, (2) SFPs (Shared)

LGB2048A: (48) RJ-45, (2) SFPs (Shared);

Power — 100–240 VAC, 50–60 Hz, autosensing

Size — LGB2008A: 1.75"H (1U) x 5.2"W x 8.5"D (4.4 x 13.2 x 21.7 cm);

LGB2048A: 1.75"H (1U) x 17.4"W x 9.8"D (4.4 x 44.2 x 24.9 cm)

Item	Code
L2 Managed Gigabit Ethernet Switches	
with (16) Small Form-Factor Pluggable (SFP) Ports + (8) Dual-Media Ports	LGB1005A-R2
with (2) Dual-Media SFP Ports + (8) 10BASE-T/100BASE-TX/1000BASE-T Ports	LGB1001A-R2
with (4) Dual-Media SFP Ports + (12) 10BASE-T/100BASE-TX/1000BASE-T Ports	LGB1002A-R2
(20) 10BASE-T/100BASE-TX/1000BASE-T Ports	LGB1003A-R2
(44) 10BASE-T/100BASE-TX/1000BASE-T Ports	LGB1048A
To connect to fiber-based Gigabit Ethernet, order...	
SFP Optical Transceivers	
Multimode, 850-nm, 550 m	LGB200C-MLC
Single-Mode, 1310-nm, 10 km	LGB200C-SLC10
Single-Mode, 1550-nm, 30 km	LGB200C-SLC30
Add an SFP to convert an SFP port to a fiber port...	
SFPs, 155-Mbps	
850-nm Multimode, LC, 2 km	LFP104
1300-nm Multimode, LC, 2 km	LFP105
1310-nm Single-Mode, LC, 20 km	LFP106
with Extended Diagnostics	
850-nm Multimode, LC, 2 km	LFP100
1300-nm Single-Mode, LC, 2 km	LFP101
1310-nm Single-Mode, LC, 20 km	LFP102
1310-nm Single-Mode, LC, 20 km	LFP102
SFPs, 1250-Mbps	
850-nm Multimode, LC, 500 m	LFP204
1310-nm Single-Mode, LC, 15 km	LFP205
1310-nm Single-Mode, LC, 40 km	LFP206
Fiber with Extended Diagnostics	
850-nm Multimode, LC, 500 m	LFP200
1310-nm Single-Mode, LC, 15 km	LFP201
1310-nm Single-Mode, LC, 40 km	LFP202
Copper	
10BASE-T/100BASE-TX/1000BASE-T	LFP300
1000BASE-T	LFP301

...or to choose a Web Smart Switch...

Web Smart Gigabit Switches	8-Port	LGB2008A
	48-Port	LGB2048A